

Air Liquide invests in innovative hydrogen storage technology

press release

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ALIAD

Air Liquide Investments in the future and demonstration (ALIAD), is a 100% Air Liquide subsidiary integrated in the Group's new network Advanced Business and Technologies entrepreneurial companies.

ALIAD contributes to the Group's growth and competitiveness by investing in young innovative companies offering new technologies. By placing investments in a dedicated subsidiary, Air Liquide ensures itself all the means for developing these projects with the necessary flexibility and reactivity.

Air Liquide announces an equity investment in the Australian company HYDREXIA through its subsidiary ALIAD, which is dedicated to investments in technology start-ups.

Founded in 2006 and based in Brisbane, Australia, HYDREXIA is a spin-off of the University of Queensland. In 7 years, this young and innovative company has developed **effective and reliable hydrogen storage technology** using a **new magnesium alloy in a solid form called "hydride"**.

The hydrogen storage in the form of magnesium hydrides is a technology that has been known since 1975, with its industrialization and commercialization being slowed down until now because of the high production cost. This new alloy should make it possible for the production of fixed or mobile stocks at a **competitive price** compared to existing technologies, combined with a **higher storage density**.

This technology is to be used for **industrial hydrogen markets** such as **glass, steel and chemicals**. In concrete terms, Air Liquide could deliver hydrogen stored in the form of hydride to its customers rather than in cylinder or bulk.

François Darchis, Senior Vice-President and a Member of the Air Liquide Executive Committee, said: ***"Storage in the form of magnesium hydride should allow us to offer our industrial customers a particularly innovative solution. Air Liquide has chosen to invest not only in the development of its own technologies but also, notably through ALIAD, in young innovative companies working in closely related fields. Innovation is at the heart of our strategy and allows Air Liquide to strengthen its competitiveness and open new markets."***

Hydrogen storage under the form of magnesium hydride

Magnesium hydrides are materials that offer storage and transport technology for hydrogen in a reliable low pressure solid form. Careful selection of the composition and microstructure of the metallic hydrides allows for the rapid absorption of hydrogen at moderate temperatures and pressure. Stored hydrogen can be safely released by simply heating the alloy. These unique hydrides make it possible to store and, in a reverse manner, release large quantities of hydrogen and support thousands of cycles.

Air Liquide and Hydrogen

Air Liquide masters the hydrogen chain from the conception and construction of large capacity production units right up to implementation at the customers' sites all over the world.

Globally, Air Liquide operates more than **200 hydrogen production sites of which 40 are large scale units**. In 2012, Air Liquide produced 11.5 billion m³ of hydrogen.

The Group currently operates several hydrogen pipelines totaling nearly 2,000 km.

Air Liquide is the world leader in gases for industry, health and the environment, and is present in **80 countries with close to 50,000 employees**. Oxygen, nitrogen, hydrogen and rare gases have been at the core of Air Liquide's activities since its creation in 1902. Using these molecules, Air Liquide continuously reinvents its business, anticipating the needs of current and future markets. The Group innovates for the good of society while delivering profitable growth and consistent performance.

Innovative technologies that curb polluting emissions, lower industry's energy use, recover and reuse natural resources or develop the energies of tomorrow, such as hydrogen, biofuels or photovoltaic energy... Oxygen for hospitals, home healthcare, fighting nosocomial infections... Air Liquide combines many products and technologies to develop valuable applications and services not only for its customers but also for society.

A partner for the long term, Air Liquide relies on employee commitment, customer trust and shareholder support to pursue its vision of sustainable, competitive growth. The **diversity** of Air Liquide's teams, businesses, markets and geographic presence provides a solid and sustainable base for its development and strengthens its ability to push back its own limits, conquer new territories and build its future.

Air Liquide explores the best that air can offer to preserve life, staying true to its Corporate Social Responsibility and sustainable development approach. In 2012, the Group's revenues amounted to **€ 15.3 billion** of which 82% were generated outside France. Air Liquide is listed on the Paris Euronext stock exchange (compartment A) and is a member of the CAC 40 and Dow Jones Euro Stoxx 50 indexes.